IN THE CLAIMS

1 (Original). A method comprising:

securing an integrated circuit having microchannels formed therein to an integrated circuit to be cooled;

enabling a cooling fluid to be pumped through said microchannels by electroosmotic pumps; and

coupling said cooling fluid to an external heat exchanger through tubes.

2 (Original). The method of claim 1 including packaging said cooling integrated circuit and said heat generating integrated circuit.

3 (Original). The method of claim 2 including extending tubes from said package to said external heat exchanger such that said heat exchanger is spaced from said package.

4 (Original). The method of claim 1 including forming a stack of said cooling integrated circuit and said heat generating integrated circuit.

5 (Original). The method of claim 4 including sealing the edges of said stack except for ports to access said microchannels.

6 (Original). The method of claim 5 including providing a fluid inlet reservoir and a fluid outlet reservoir in communication with said microchannels.

7 (Original). The method of claim 6 including forming said reservoirs in a package including said stack.

8 (Original). The method of claim 7 including isolating said inlet and outlet reservoirs in said package.

9 (Original). The method of claim 8 including coupling said inlet and outlet reservoirs exteriorly of said package.

10 (Withdrawn). A packaged integrated circuit comprising:

a stack including an integrated circuit chip to be cooled and a cooling integrated circuit chip, said cooling integrated circuit chip including microchannels for the circulation of a cooling fluid;

a package receiving said stack, said package having formed therein an inlet fluid reservoir and an outlet fluid reservoir to communicate with said microchannels; and

an external heat exchanger mounted on said package by a pair of cooling fluid circulating tubes.

11 (Withdrawn). The structure of claim 10 including a first trench for containing a fluid so as to communicate from the exterior of said cooling integrated circuit chip with said channels.

12 (Withdrawn). The structure of claim 11 including a second trench isolated from said first trench and abutting said cooling integrated circuit chip in said package.

13 (Withdrawn). The structure of claim 12 wherein said second trench to contain fluid and to fluidically communicate with said microchannels.

14 (Withdrawn). The structure of claim 10 wherein the edges of said heat generating integrated circuit chips are sealed.

15 (Withdrawn). A packaged integrated circuit structure comprising:

a stack including an integrated circuit chip to be cooled and a cooling integrated circuit chip, said cooling integrated circuit chip including microchannels for the circulation of a cooling fluid;

a package receiving said stack, said package having formed therein an inlet fluid reservoir and an outlet fluid reservoir to communicate with said microchannels; and

an external heat exchanger in communication with said outlet fluid reservoir and said inlet fluid reservoir.

16 (Withdrawn). The structure of claim 15 wherein the edges of said integrated circuit chips are sealed.

17 (Withdrawn). The structure of claim 15 wherein said stack is in contact with said fluid reservoirs.

18 (Withdrawn). The structure of claim 17 wherein said microchannels communicate with the edges of said cooling integrated circuit chip.

19 (Withdrawn). The structure of claim 15 wherein said external heat exchanger is mounted on said package through a pair of fluid circulating tubes, said tubes arranged to circulate fluid through said heat exchanger.

20 (Withdrawn). The structure of claim 19 wherein said external heat exchanger is spaced from said package.

21 (Withdrawn). The structure of claim 15 including electroosmotic pumps in said cooling integrated circuit chip.

22 (Withdrawn). The structure of claim 21 including a re-combiner coupled to each of said electroosmotic pumps.